

09/890331

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Klaus Joos

Based on PCT/DE 00/04256

For: Fuel Delivery System For An Internal Combustion Engine

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified application as follows:

IN THE SPECIFICATION

Please replace in their entirety pages 1, 4, 7, 8, 14, 17, and 22, with new pages 1, 4, 7, 8, 14, 17, and 22, attached hereto as Appendix 2.

Page 18, line, delete "Claims" and insert --We Claim--.

IN THE CLAIMS

Please cancel claims 1-16 and add new claims 17-35.

17. A fuel delivery system for an internal combustion engine comprising a fuel feed pump (10), which delivers fuel which is at pilot pressure to a high-pressure fuel pump (11) that communicates on the high-pressure side with at least one injection valve (14), in order to deliver fuel at high pressure to the injection valve or valves (14), and means for delivering a coolant medium flow to the high- pressure fuel

pump (11) via at least one coolant conduit (21, 31), in order to keep the temperature (T_{HDP}) of the high- pressure fuel pump (11) below a critical operating temperature (T_{k1}).

18. The fuel delivery system of claim 17, wherein for cooling, air is delivered as a coolant medium to the high-pressure fuel pump (11) through the coolant conduit (21).

19. The fuel delivery system of claim 18, further comprising a fan (23) associated with the at least one coolant conduit, for generating the cooling air flow through the coolant conduit (21).

20. The fuel delivery system of claim 19, wherein said fan (23) is controllable as a function of the temperature of the high-pressure fuel pump (11) and the critical operating temperature (T_k).

21. The fuel delivery system of claim 17, wherein for cooling, a coolant liquid is delivered as a coolant medium to the high-pressure fuel pump (11) through the coolant conduit (31).

22. The fuel delivery system of claim 21, wherein said coolant liquid is coolant water diverted from the cooling system of the engine.

23. The fuel delivery system of claim 21, further comprising a blocking valve (32) for controlling the delivery of coolant medium said blockage valve being actuatable by a control circuit (18) as a function of the temperature (T_{KS}) of the coolant medium and the temperature (T_{HDP}) of the high-pressure fuel pump (11).

24. The fuel delivery system of claim 22, further comprising a blocking valve (32) for controlling the delivery of coolant medium, said blockage valve being actuatable by a control circuit (18) as a function of the temperature (T_{KS}) of the coolant medium and the temperature (T_{HDP}) of the high-pressure fuel pump (11).

25. The fuel delivery system of claim 17, further comprising a pressure regulator device (19) assigned to said low-pressure fuel pump (10), in order to enable adjusting the fuel pressure delivered to the high-pressure fuel pump (11) on the low-pressure side.

26. The fuel delivery system of claim 25, wherein said pressure regulator device (19) is connected on the output side to the fuel feed pump (10) and is controllable by a control circuit.

27. The fuel delivery system of claim 26, wherein said pressure regulator (19) is controllable such that the pressure delivered to the low-pressure side of the high-pressure fuel pump (11) can be limited to a first or a second value.

28. The fuel delivery system of claim 26, wherein said pressure regulator (19) is controllable such that the pressure delivered to the low-pressure side of the high-pressure fuel pump (11) can be regulated variably.

29. The fuel delivery system of claim 26, wherein said pressure regulator (19) has a first and a second pressure limiting valve (25, 27), which are connected in parallel and enable a pressure limitation to a first and a second pressure, respectively.

30. The fuel delivery system of claim 28, wherein said pressure regulator (19) has a first and a second pressure limiting valve (25, 27), which are connected in parallel and enable a pressure limitation to a first and a second pressure, respectively.

31. The fuel delivery system of claim 29, wherein said pressure regulator (19) has a first and a second pressure limiting valve (25, 27), which are connected in parallel and enable a pressure limitation to a first and a second pressure, respectively.

32. The fuel delivery system of claim 29, further comprising a blocking valve (26), actuatable by the control circuit (18), connected in series with the pressure limiting valve (25) for the low pressure.

33. The fuel delivery system of claim 32, further comprising a controllable throttle device connected in series with the pressure limiting valve (25) for the low pressure.

34. The fuel delivery system of claim 33, wherein said throttle device has a throttle valve, which is embodied such that the flow resistance increases disproportionately as the quantity of fuel flowing through increases.

35. The fuel delivery system of claim 17, comprising at least two coolant conduits (21, 31) of which one coolant conduit (21) delivers air and another coolant conduit (31) delivers water as coolant medium to the high-pressure fuel pump (11).